

What is claimed is

1     1.     An external fixation device for the fixation of a proximal fracture of an ulna  
2     within a patient, wherein said external fixation device includes:  
3         a frame including an elongated distal portion, having an inner surface  
4     facing upward, and a proximal portion extending rearward and upward from said  
5     distal portion, having an inner surface facing upward and forward;  
6         a plurality of shaft attachment pins for attachment within a shaft portion of  
7     said fractured bone;  
8         a plurality of shaft attachment pin clamps extending along said elongated  
9     distal portion, wherein said shaft attachment pin clamps hold said shaft  
10    attachment pins to extend upward from said elongated distal portion;  
11        a plurality of fragment attachment pins for attachment within fragments of  
12    said fractured bone;  
13        a plurality of fragment attachment pin clamps extending along said  
14    proximal portion, wherein said fragment attachment pin clamps hold said  
15    fragment attachment pins to extend upward from said proximal portion;  
16        a medullar pin for attachment within a medullar channel of said fractured  
17    bone; and  
18        a medullar pin clamp disposed within an upper end of said proximal  
19    portion, wherein said medullar pin clamp holds said medullar pin to extend above  
20    said elongated distal portion.

1     2.     The external fixation device of claim 1, wherein  
2         said elongated distal portion includes a plurality of shaft pin attachment  
3     holes, each including an internally threaded portion and a tapered portion  
4     extending from an end of said internally threaded portion to said inner surface of  
5     said elongated distal portion,  
6         said proximal portion includes a plurality of fragment pin attachment holes,  
7     each including an internally threaded portion and a tapered portion extending

8 from an end of said internally threaded portion to said inner surface of said  
9 proximal portion, and a medullar pin attachment hole, including an internally  
10 threaded portion and a tapered portion extending from an end of said internally  
11 threaded portion to said inner surface of said proximal portion,

12 each of said pin clamps includes an externally threaded portion including  
13 longitudinally extending slots at a first end, a non-circular head at an end  
14 opposite said first end, and a hole extending through said pin clamp for holding a  
15 pin. and

16 said first end of said threaded portion clamps a pin extending through said  
17 hole within said pin clamp as said pin clamp is driven into engagement with said  
18 tapered portion.

1 3. The external fixation device of claim 1, wherein said shaft attachment pins  
2 are held within said shaft attachment pin clamps to be disposed along a line  
3 extending toward a distal end of said external fixation device.

1 4. The external fixation device of claim 1, wherein said fragment attachment  
2 pins are held within said fragment attachment pin clamps to be disposed along a  
3 pair of spaced apart lines extending longitudinally along said proximal portion.

1 5. The external fixation device of claim 4, wherein said fragment attachment  
2 pins are held within said fragment attachment pin clamps to extend inward from  
3 said proximal portion of said frame and toward a line between said spaced apart  
4 lines extending between proximal and distal ends of said external fixation device.

1 6. The external fixation device of claim 1, additionally comprising a plurality  
2 of removably attached spacers holding said frame spaced away from said patient  
3 during installation of said pins.

1 7. The external fixation device of claim 1, wherein one or more of said  
2 fragment attachment pin clamps each hold a fragment pin to extend inward and  
3 upward from an upstanding end of said proximal portion.

1 8. A method for external fixation of a proximal fracture of an ulna within a  
2 patient, comprising:

3 surgically installing a medullar pin to extend through a medullar pin clamp  
4 within a proximal end of an external fixation device and through proximal end of  
5 said ulna into a medullar channel within said ulna;

6 surgically installing a plurality of shaft attachment pins to extend through a  
7 plurality of shaft attachment pin clamps within an elongated distal portion of a  
8 frame of said external fixation device into a shaft portion of said ulna, wherein  
9 each of said shaft attachment pins extends upward; and

10 surgically installing a plurality of fragment attachment pins to extend  
11 through a plurality of fragment attachment pin clamps within a proximal portion of  
12 said external fixation device, to extend upward and inward within fragments near  
13 said proximal end of said ulna.

1 9. The method of claim 8, wherein a surgical installation of each pin includes  
2 rotating a clamping screw forming a pin clamp having said pin extending through  
3 a hole within said clamping screw to drive segments of a slotted end of said  
4 clamping screw together to hold said pin as said slotted end of said clamping  
5 screw is driven into engagement with a tapered hole within said frame.

1 10. The method of claim 8, wherein said shaft attachment pins are held by  
2 said shaft attachment pin clamps to be disposed along a line extending between  
3 proximal and distal ends of said external fixation device.

1 11. The method of claim 8, wherein said fragment attachment pins are held  
2 within said fragment attachment pin clamps to be disposed along a pair of  
3 spaced apart lines extending longitudinally along said proximal portion.

1 12. The method of claim 11, wherein said fragment attachment pins are held  
2 within said fragment attachment pin clamps to extend into said fragments and  
3 toward a line between said spaced apart lines extending longitudinally along said  
4 proximal portion.

1 13. The method of claim 8, additionally comprising removing a plurality of  
2 spacers from said external fixation device, wherein said spacers hold said frame  
3 spaced away from said patient.